



EC

**Figure 4.1-7.** Type and source of waste streams generated by the Conventional Processing technology option.

rent and past SRS operations or on engineering judgments for new treatment technologies.

The following paragraphs describe estimated utility requirements for the options.

#### 4.1.1.5.1 Water Use

Vitrification and Electrometallurgical Treatment would require the most water, followed by Conventional Processing. Total requirements for Vitrification and Electrometallurgical Treatment of all applicable fuel groups would be less than 6,000 liters per year, (the equivalent of 4.3 gallons per day) which is a minute portion (0.00001 percent) of groundwater withdrawal of more than  $5 \times 10^9$  liters per year (DOE 1997). Due to the comparatively long period required to process the HEU/LEU oxides and silicides requiring resizing or special packaging (Fuel Group C) and the loose uranium oxide in cans (Fuel Group D), the Conventional Processing technology would require the greatest amount of water for those groups. For the higher actinide targets, Repackage and Prepare to Ship would require 67 percent of the water needed to support the only other option under consideration for that fuel group, Continued Wet Storage. In general,

the Direct Disposal/Direct Co-Disposal, Melt and Dilute, Mechanical Dilution, and Repackage and Prepare to Ship technologies would require the least water for their applicable fuel groups, approximately 5 to 6 percent of the maximum requirement for a given group.

#### 4.1.1.5.2 Electricity Use

Vitrification and Electrometallurgical Treatment would have the highest annual demand for electricity, followed by Conventional Processing. Differences in the time necessary to treat a fuel group under different options would affect total electricity requirements. Due to the longer period required to process the materials test reactor-like fuels (Fuel Group B), HEU/LEU oxides and silicides requiring resizing or special packaging (Fuel Group C), and loose uranium oxide in cans (Fuel Group D), Conventional Processing would require the most total electricity for those groups. For the higher actinide targets, Repackage and Prepare to Ship would require less than half the electricity needed to support continued wet storage. In general, for the appropriate fuel groups, the least electricity would be required to support Direct Co-Disposal and Mechanical Dilution.